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## e-Governance: Supporting pragmatic direct deliberative action through online communities of interest

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# **e-Governance: Supporting pragmatic direct deliberative action through online communities of interest.**

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Authors often report on the limited success of e-Government initiatives in developing nations. Top down, national strategies are developed to target improved government services, but maintain hierarchical, citizen-state conceptions of governance through representative democracy. An alternative conception, direct deliberative democracy, frames the potential role of the internet in governance differently. Web based platforms might support locally animated deliberations, which target pragmatic outcomes, while the resulting social networks afford collective learning through connections across traditional boundaries. This paper presents an investigation of direct deliberative governance as it occurs in online “communities of interest”, and is based on research with such a community in southern Africa. We investigate contributions to the online governance process and develop an action typology distinguishing between degrees of “agency freedom”. Network analytic techniques are then used to understand how acts of varying degree are expressed in terms of the structure of a social network. The aim, more broadly, is to understand how the environment shapes acts of direct deliberative governance, and, in turn, how the acts shape the evolution and effectiveness of the community. The preliminary results suggest design considerations for online governance communities, and highlight their role to not only provide deliberative space, but to mediate social network connections.

**keywords:** direct deliberative democracy, local governance, social media, communities of interest, social networks, agency freedom

## **1. Introduction**

The limited success of e-government initiatives in the developing world has been repeatedly highlighted (Heeks, 2003; Bertucci, 2008). In the South African context Farelo & Morris (2006) suggests that, while the political will exists to improve, and a national roadmap had been developed, e-government “is in the formative stage of development.” Authors report on top down, national e-government strategies that primarily target information dissemination, streamlined internal processes and improved service delivery. Where there is

acknowledgement for the role of ICT to facilitate participatory decision-making, it is implicitly assumed that this too would be a government 'service'. In maintaining hierarchical, citizen-state conceptions of governance through representative democracy, this conception of e-government frames solutions in ways that ignore key opportunities of the online medium, and constrains its promise as tool for governance in southern Africa.

The alternative notion of direct deliberative democracy informs particularly local governance solutions: "[b]ecause of the numerosity and diversity of sites, we want a structure of decision-making that does not require uniform solutions ... because of the complexity of problems, we want a structure that fosters inter-local comparisons of solutions" (Cohen 1997). Cohen outlines a system of governance where citizens can make collective decisions through public deliberation, while their choices are examined in the light of relevant deliberations in comparable situations. This, in his view, combines the advantages of self-government and local learning with wider processes of social learning and heightened political accountability.

Direct deliberative democracy, seen from this point of view, has different expectations of the internet in facilitating governance:

- To support governance which expresses itself in different types of action, in diverse contexts and across multiple networks.
- To allow exchanges between actors that focus on solving problems "where it matters" - in terms of potential impact and their personal interest.
- To facilitate governance which does not necessarily have traditional government or any particular political party at its centre. This seems additionally relevant in a context where traditional leadership exists in parallel to local and regional government.

Informed by this frame of reference, the authors are engaged in a programme of research to investigate the potential role played by online communities of practice/interest (Wenger, 1998), to support such direct deliberative governance. More specifically, the research hopes to address the following questions:

1. How is direct deliberative governance enacted through online communities? In particular, what forms do governance actions take, what roles do actors employ, and how do the actors or actions relate to each other in the social network?
2. How does the environment afforded by online communities shape acts of direct deliberative governance, and in turn, how do acts of direct deliberative governance shape the evolution and effectiveness of these communities?

3. How can online social platforms be designed, deployed and adopted by and for communities seeking to effect direct deliberative governance?

This paper reports only on an initial phase of the work, and so mainly addresses the first compound question, in the context of one online community based in southern Africa. There are however aspects of the answers to each of the further questions which emerge in the process.

In the next section we briefly outline the theoretical background, in particular to consider the notion of direct deliberative governance as we use it, as well as to situate the inquiry within the literature relating to participative democratic process on the Internet. Section three describes the research context for this preliminary study. Thereafter we report on the development of a typology of online governance actions, and the use of network analytic techniques to understand how both actors and action relate in terms of network structure. Section five presents conclusions and indicates further research prompted by the work.

## **2. Direct deliberative democracy and the online public sphere**

In the introduction, we have implied the use of a specific approach to direct deliberative democracy as point of view from which to reconsider the potential role of the internet in improved governance. To clarify, we briefly engage with the notion of direct deliberative democracy in a broader sense.

Discussions of direct, or pure democracy frequently refer back to the Athenian city-state democracy in the 5th century BC as earliest written record (Manin, 1997). From these roots, it is usually defined as a form of democracy where decision-making power is lodged in the assembly of all citizens who choose to participate (“pure democracy”, 2009, “direct democracy”, 2009). This is typically contrasted to representative democracy, where decisions are made by a set of elected officials. The comparison is frequently accompanied with an implicit evaluation of representative democracy that the power distance between representatives and represented, as well as the perceived inability of a representative system to accommodate divergent interests, leads to decisions that are less than optimal. Manin (1997) however points out, in practice the division between direct and representative democracy is artificial, since neither implies an absolute form and the practical implementation of ‘directness’ has multiple dimensions. Saward (1996) further complicates conceptual distinctions by proposing that even direct involvement involves representative claims, for example in the form of citizens claiming to speak “on behalf” of their community or like minded others. From a democratic governance perspective, one might then more appropriately ask whose “reality” is reflected (Chambers, 1995) in a governance process. In other words, given that some level of representativeness appears likely, to establish the extent to which a process is accommodating of

diverse “representative claims” (Saward, 1996) and serves the true interests of those most affected by the outcome. Barber (2004), in promoting what he calls “strong” democracy, proposes the intention not so much to replace representative with strong democracy, but to “thicken thin democracy with a critical overlay of participatory institutions” (p.xvi). In Barber’s view, citizens have the right to be involved in decisions which most directly influence their lives. For the sake of clarity, we will maintain the distinction in existing terminology, with ‘directness’ referring to a greater degree of citizen participation – the aforesaid taken into account.

As we outlined in the introduction, Cohen (1997) specifically combines the notion of direct democracy with deliberative process. Bohman (1998) cites Rawls, Habermas and Cohen in a compound characterisation of deliberative democracy, which holds that legitimate, broadly acceptable decisions are the result of a process organised around the ideal of political justification, requiring free public reasoning of equal citizens. This proposes a system where, under ideal conditions, claim can be met with counter claim, based on evidence as justification – so that decisions rely on the force of the better argument – for the greater good (Habermas in Klein et al., 2004). Proponents would claim that, though conditions are rarely ideal, the system is none the less preferable to one where decisions are the result of an un-deliberated poll, or are based on the prima facie entitlement of one claimant.

Though direct deliberative democracy has appealing fundamental principles as we have presented it thus far, the notion is not without critics. Dahl (1989, in Roberts, 2004) criticises that direct participation is not realistic considering the size and complexity of the modern nation state. Citizens have limited time to be involved, and do not have the specialist skills or expertise provided by a representative administration. Gutmann and Thompson (2004) present both practical and ethical concerns with direct forms of deliberative democracy. Particularly at the national level, they are concerned that it is not practical to include everyone in deliberation, and the public are not all skilled (equal) deliberators – they may not give the best reasons, nor make the best decisions.

Recently, many theorists have been optimistic that the development and increased diffusion of the internet might provide new solutions to particularly the logistical or co-ordination shortcomings cited of both direct and deliberative democracy. In a literature review of participative governance, Roberts (2004) comes to the general conclusion that direct citizen involvement has been on the increase since the mid twentieth century as “democratic societies become more decentralized, interdependent, networked [and] linked by new information technologies.” (p.1) Related to the notion that direct participation presents logistical problems in larger groups, Shirky (2008) and Benkler (2002) propose

that online social media substantially reduce the co-ordination cost associated with collaborative action. They contextualise earlier work by Coase (1937, in Benkler 2002), who proposes that organisational forms are the result of attempting to institutionally minimise what is more broadly termed transaction costs. Because of changes in co-ordination cost brought about by the web, Benkler argues, collective governance and flat organisational hierarchy are becoming increasingly dominant forms of social organisation. Shirky (2008) claims that loosely co-ordinated online groups are supporting "... serious, complex work, taken on without institutional direction." Castells (2007) similarly describes the development of a new communication sphere as the result of efficiencies in networked organisation. He refers to "mass self communication", where communication is self-produced as much as self directed in consumption, yet has the potential to connect a mass audience. His work is cautiously optimistic of the potential for direct deliberative governance involvement as a result.

Vedel (2006) however critically reviews such theories of "electronic democracy", which he contextualises as an evolution of two earlier models of ICT assisted government: the data driven governing machine of the 1950's, and mass media driven teledemocracy of the 1970's. In his view, electronic democracy is driven by the "Californian ideology" of thinkers such as Perry Barlow, Rheingold and Dyson, associated with the ideal of the citizen as autonomous agent in a global village, and of cyberspace "as metaphor and tool of political self organization." In spite of the new economics of information sharing and self organization, Vedel argues that electronic democracy has yet to fulfil its promise, and that authors fail to address long established challenges of strong democracy in the new context:

- that it has a demanding conception of citizenship which potentially requires unrealistic levels of engagement;
- that actors are strategic and present biased information to support decisions, while citizens are unable to assimilate the overload of information related to diverse questions of governance;
- that democracy is reduced to discussion, while decision making and implementation is disregarded;
- and the need for intermediary bodies such as political parties to channel and contextualize information streams, and to enable collective action.

There is substantial contemporary research relevant to Vedel's criticisms - in particular recent work on e-participation and online activism might offer counter points. However, each of these two approaches have limitations in the context of our study:

DemoNet (2009), an online meta-community for e-participation projects and researchers funded by the European Commission, lists 70 diverse projects targeting improved citizen participation. However, what the majority of these have

in common, is a conception of deliberative participation driven by, or focused on traditional institutions of government - effectively mediating the engagement of citizens with a representative administration. Not only does institutional government have limited reach in some governance contexts, it also has doubtful capacity to fairly facilitate, as well as participate in, interaction that criticizes its own practice or policy. Isin (personal communication, March 2009) refers to traditional, “top down” participatory processes as “strategies of containment” – a way for government institutions to give the impression of openness, while affording themselves inequitable control of the deliberative space. This presents the need for research into online governance driven by communities or individual citizens, much as government may be party to the deliberation.

Online activism (Ayers & McCaughey, 2003) is significantly driven “bottom up”, driven by lobbying and advocating through self organised initiatives. Many of the popular democratic success stories of the web, for example online support for the Zapatista movement (Garrido & Halavais, 2003) or the 2001 protests against the World Bank (Vegh, 2003) are activism related, and activism undoubtedly has an important role to fulfil particularly where there is an unequal balance of power (Young, 2001). However, activism has the disadvantage that each activist group or issue requires a critical mass of attention for which it must compete in an increasingly unequal marketplace (Hindman, 2009). Contrary to the ideals of pluralism (p.141), the online media space appears to exhibit a power law distribution of traffic where “winner takes all” – a small number of scandals dominate attention (p.131). As a result, issues are presented in isolation, propagated on the basis of their charismatic appeal to attention (Castells, 2007). Inevitably, with limited resources available to implement decisions, there are tradeoffs that have to be made in any governance situation - an optimal solution needs to integrate multiple demands. Activism does not offer a suitable framework to develop such balanced governance.

Cohen’s characterisation of direct deliberative democracy (1997), appropriated to focus on local governance rather than necessarily national political process, offers a compelling alternative. In response to Vedel’s (2006) criticisms, when direct participation is refocused on local governance, citizens engage where they are most qualified and empowered to provide input, where they are realistically able to challenge lack of transparency, where they can be part of decisions or act directly, and where they have most invested in potential outcomes. The term governance is used here to refer to a decentralised, broad based process of civic organisation, where government is a player, but not necessarily central or the driver of expected outcomes. Such an approach seems especially relevant in southern Africa, where in some states political democracy exists only in weak form (Human Rights Watch, 2009), where there are often multiple governance authorities (e.g. traditional leadership in parallel to municipality, Ntzebeza, 2004), or where national government is unable to meet local governance needs because

of logistical difficulty, a lack of funds, or limited human capital (Wunsch, 1998).

This paper accordingly aims to investigate how direct deliberative democracy, as it has been framed above, might be supported using online “communities of interest” (Wenger, 1998). We appropriate Wenger’s definition loosely, to characterise a form of online social organisation which we have practical experience of, but which may yet prove to have only limited commonality with Wenger’s characterisation. Specifically, we investigate the underlying dynamics of governance related interaction in one such community to better understand how the online space mediates and is in turn shaped by these interactions – and the extent to which interactions might pragmatically be considered examples of direct deliberative governance.

### **3. Research setting**

This paper draws on research into an initiative, launched in 2002 to promote information sharing and collective action between stakeholders in the western coastal areas of South Africa, Namibia and Angola. The project donors hoped to incubate a community of interest focussed specifically on sustainable development and environmental governance. A central project team was established, with both permanent and temporary employees to act as administrators and facilitators of the community. The team implemented a web enabled approach to participation and governance focused not only on socially inclusive interaction of citizens with government, but also, significantly, on citizen to citizen networking, capacity building and knowledge sharing. They aimed for governance to be as much driven from the bottom up, as from the top down.

The objectives of the initiative have clear parallels with key proposed attributes of direct deliberative governance (Cohen, 1997) in that it seeks to support pluralistic, locally relevant solutions through collective decision making, while providing opportunity for social learning through inter-local comparison of solutions. There were established environmental and development governance initiatives in the target region, but they acted in fragmented networks with little co-ordination between initiatives. This resulted in the diffusion of effort and relatively little success against large, co-ordinated opponents such as the local mining industry. The project aimed to provide a “meta network” to connect these fragmented initiatives. In the process of connecting stakeholder groups, the initiative sought also to reconfigure local networks to particularly afford disempowered communities increased voice or agency. This steered the points of engagement it sought.

In 18 months the online community platform had served 103677 page views and recorded 2200 unique monthly visitors – of these 57% were from within the



region. More significantly, there were 650 registered members who had made 1855 message posts to the discussion list. The discussions involved members of civil society and NGO's - as well as local and regional government, and frequently focussed on practical issues of governance: legislation to protect sensitive dune environments from damage by off-road vehicles; impact assessment for a proposed nuclear power station; how to best deal with (protected) desert elephants damaging farmers' crops. The initiative appears to have successfully provided ground where all parties could participate in constructive dialogue and share solutions.

## **4. Understanding the impact of the online environment on empowerment**

Our case investigation has a series of linked objectives:

- To take account of the range of acts which contribute to the process of direct deliberative democracy, as it is mediated by the online space.
- To visualise the structure of the social network revealed by interactions, as the means to understanding the dynamics of participation.
- To investigate how different categories of action are expressed in terms of the social network structure and understand which positions in the social network are relatively empowered.

The answers to these questions offer the basis from which to reflect on the ideals set of direct deliberative democracy and how these might have practically been realised, or have opportunity to be developed in a community such as the case study

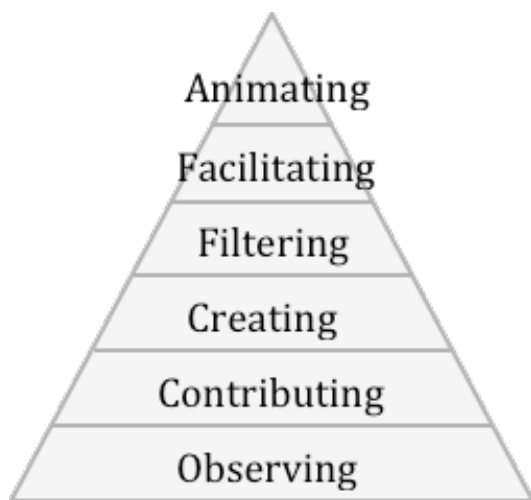
The research broadly follows a structured case approach (Carrol, 2000) - analysis was grounded in a community that we have detailed familiarity with, yet informed by theory and results compared to cases in the subject literature.

### ***4.1 A typology of governance acts***

As first step to investigating "acts of governance", a broad list was compiled of the acts, in the context of our case platform, which might contribute to processes of governance. This was done by referring to affordances (Wellman et al., 2003) of the community web platform as well as reviewing project activity reports and previous case study material. In the introduction we referred to online participative governance driven by multiple types of action. De Cindio, Di Loreto et al. (2008) similarly refer to "modes" of public participation in a socio-technical system, which proposes that participation in governance may be more diverse than purely deliberative action. If the community is analysed as a socio-technical interaction network (Kling,McKim et al. 2003), there is complex interaction

between a range of actions - online and offline, from direct participation to informing others and moderating discussion, even externally orientated actions such as recruiting new members or promoting the initiative in the press. We considered the actions of various roles in the community – the agency supplying funding, the project team supporting the network, its users at different levels of engagement. The objective was to capture as much diversity as the case community offered, rather than trying to be literally complete. Each action was captured at approximately the same semantic level (Rugg & McGeorge, 1997; Upchurch & Rugg, 2001) in order to facilitate further analysis. The unstructured list of acts was subsequently synthesised through a series of open, “all in one” card sorts (Rugg et al., 1997). Rather than setting specific criteria for the sorts, only a general framing “facet” was provided: to group cards in clusters of “overall similarity” in the context of types of governance action. Rugg reports this a useful method where a large number of items (>20) are to be explored by a domain expert aiming to identify underlying factors.

For the purpose of this study, the most relevant composite criterion which emerged might be characterised as “level of empowerment” (Zimmerman, 1995), or degrees of “agency freedom” Sen (1988, in Barnbeck 2006). In other words, the groups resulting from a sort on this criterion reflected a progression of “what a person might achieve with respect to their aims and values.”



**Figure 1** - Typology of online governance actions

**Figure 1** depicts the resulting typology of six groups or categories of online governance actions, graphically represented from what we perceived to be relatively low levels of empowerment, to the highest (in the context of the online community).

*Observing* includes generic acts such as ‘presence’ and ‘information seeking’ – relatively passive engagement with the online resource. Also referred to as “lurkers” (Nonnecke & Preece, 2000) in the context of online forums, people who

mainly observe none the less contribute to the governance process: They provide an audience for those who contribute more directly, helping provide critical mass (Butler, 2001) and their actions further constitute an implicit vote - what they pay attention to is interpreted as important, their presence considered a measure of relevance.

*Contributing* actions might include communicating in the online discussion groups or setting up a personal profile – in other words giving some form of input. At this level a participant potentially takes an active role in multi directional communication.

*Creating* actions differ from contributing actions in scope and nature. In the context of our case project, these might have included developing subject briefings, writing a course module, or uploading documents to a central repository as group assets. This presents more than just a personal statement in an informal discussion. The equivalent in normal conversation would perhaps be the distinction between a comment and a formal speech. The act positions the creator as an expert, and contributes to community in more deliberate manner than through automated aggregation of informal actions.

*Filtering/editing* actions shape or interpret the information visible to others *a priori*. These actions typically have influence on much larger scale than the filtering implicit in the creation of a single document. It also occurs in the background – filtering is not often exposed, or even explicitly considered in terms of its impact on shaping a governance agenda. In the case community filtering would refer to, for example, deciding what stories are reported in a newsletter, how images should be categorised in the reference library, or what constitutes a body of subject knowledge in a course.

*Facilitating* refers to the process of shaping or steering the communication and actions of others. While a skilled (impartial) facilitator might e.g. attempt to ensure that everyone is given fair opportunity in discourse, this process is often strongly influenced by personal capacity and point of view, as well as a defined deliverable of the process of facilitation. The case community included discussion moderators who “seeded” conversation, posted provoking articles and were required to make judgements on inflammatory posts, or which contributions were considered “off topic”. The project management functions relevant to our typology were also considered facilitating actions.

*Animating* indicates the ability to start or animate an independent initiative. This implies direct involvement in, or control over each of the other steps and also constitutes the opportunity to define a new network. The donors and key members of the project team were essentially the animators of the case project. They developed the initial project design, recruited members to the community

from their own networks and provided much of the initial drive.

Further reflection on this typology in the context of our case study suggested dynamics very relevant to our investigation of direct deliberative governance - progressing from observing to animating:

- Power and the ability to influence or exert control over others increases.
- The required level of engagement increases.
- The actors were more likely to be community administrators, members of the organisation facilitating the community affairs.

But also

- The numbers of actors decreases.
- Diversity of several demographic factors, as well as diversity of opinions decreases.
- Physical proximity to the issues under discussion decreases.

For an online community to be effective at supporting direct deliberative governance as we had framed it earlier, one would not expect the impetus of action to be hierarchically concentrated in the core, relatively distanced from the contingency of diverse local conditions. The community would need to encourage diversity, and empower as many of its members as possible to participate with a high level of agency freedom. Further analysis shows that these distributions are neither uniformly true of the case project, nor necessarily inevitable given the online environment. The structure or network topology is an implicit factor in this discussion, and is the next dimension of the community environment that we propose to investigate.

## ***4.2 Network structure***

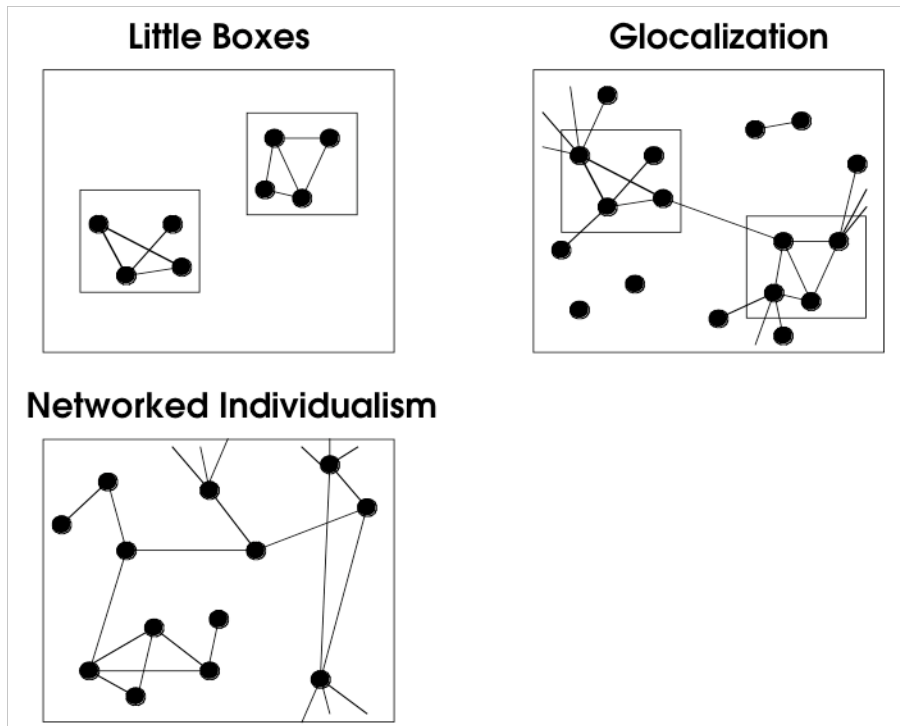
By using the label online ‘community’ we have already implied some aspects of structure, though not so much inferring a community that is defined by geography or culture, as by shared interest. Wenger (1998) suggests relevant features: that membership is defined by participation, that participation occurs around a shared practice, and that the resulting community spans across the boundaries of traditional forms of organisation. However, Wenger’s approach largely describes a single, relatively cohesive social structure and its evolution. The theory assumes a hierarchy extending from core to periphery, and where participation at the periphery is discussed, it is analysed in terms of the core. Members engage in “legitimate peripheral participation” (Wenger, 1998, p.100) in order to ascend in position relative to the core.

We previously described the case community as a form of meta-network – aiming to support networking between individual initiatives, rather than to compete with these for affiliation in a form of tightly bonded community in its own right. The

practical impact of governance acts would lie outside the online community, potentially well beyond its periphery. Also, while the case community has a topical focus, in this case it did not so much imply a common “practice” as a shared governance objective. For our purpose, the communities of practice approach did not provide sufficient mechanism to understand how such a governance network might be internally structured, and how this structure might both reflect and steer its mediation with the external world.

A number of authors (Wellman, 2002, Castells, 2000, Bauman & Tester, 2001) employ a more substantial shift away from the community metaphor to a network based description of interaction and social structure. Wellman’s research contrasts traditional neighbourhood communities with internet mediated social networks (2002a, 2002b, 2005). He suggests that, as a result of the network affordances of the online space, social ties are more specialized, with different network members supplying, for example, emotional support, friendship or information. The ties are voluntary and less spatially defined, and as a result people act in multiple, overlapping networks or social circles, with potentially limited involvement in each (Wellman, 2005, Castells, 2000). In Wellman’s “networked individualism”, the individual becomes the centre and author of their own private network, dynamically assembled from their various relations. While this networked approach is not incompatible with the notion of community, Wellman’s research does imply an increasing fluidity in its structure. From the perspective of any particular online community, participation at the periphery becomes the norm.

Wellman recognises that online social ties potentially have reciprocal relationships with offline social groups, which may yet be more geographically bound. He proposes a resulting hybrid structure, “glocalization”, that consists of tightly bound clusters of nodes, with a number of bridging or “weak ties” (Granovetter, 1973) linking them. This might be particularly relevant where communities are focussed on direct governance, proposing a strong grounding in one or more geographic communities. **Figure 2** illustrates the three forms of social organisation proposed by Wellman, with traditional neighbourhood community labelled as “little boxes” (Wellman, 2000b).



**Figure 2** - Wellman's three forms of social organisation (2000b)

We analysed the network underlying the case community to understand how its structure might relate to Wellman's typology – whether it is dominated by a strong core, characterised by more evenly distributed participation, or potentially a hybrid with dense clusters linked by weak ties. We were also interested to understand what other structural features might be latent, particularly shaping individual expression of “agency freedom”. (Sen, 1985 in Barnbeck 2006)

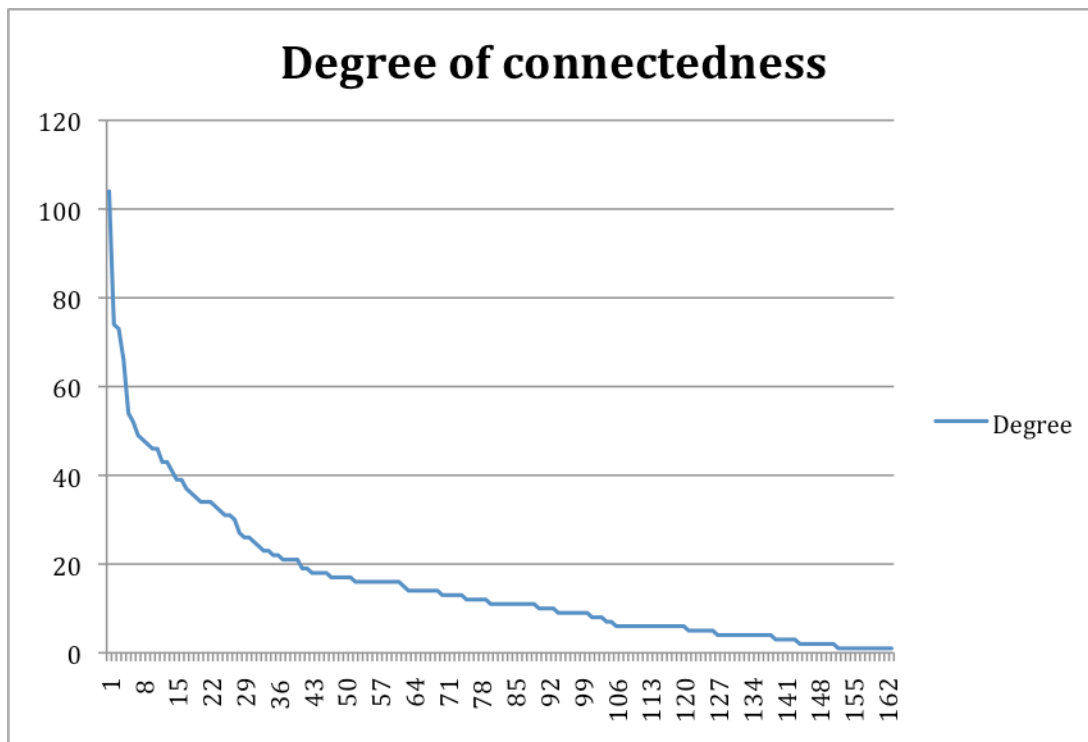
The network structure was inferred from the community discussion system, which provided a record of all online communications archived by discussion thread. In the 42 months between October 2005 and March 2009 there were 145 “conversations” (threads with at least one reply), involving 163 unique users and 850 individual messages. Each participant was recorded as a “*node*” in the network diagram, and reciprocal links (“*ties*”) recorded between all those present in any given conversation. The number of shared conversations determined the strength of the link between any two nodes. Huberman & Adamic (2005) successfully used a similar approach in several studies to develop a network description based on email conversations. For the purpose of this analysis, members who did not participate in at least a two way exchange of communication were not included, as we were unable to infer their relationship to any of the active nodes.

This method developed a network model in sympathy with Wellman's dynamic characterisation of networked social organisation (2002, 2005), with ties defined

by actions rather than by a description of static relations between nodes. It does however have the limitation that it presents a composite view of the structure, which superimposes patterns of behaviour that may have been chronologically separated by a year or more. Assuming that especially stronger ties might survive for several years, such a representation is not necessarily problematic. We further acknowledge that this analysis maps relations between only 163 of 650 registered users, based on only one aspect of their interaction. It does not consider relations that may have pre-existed the community, nor relations which are expressed in ways other than through online discussion – for example by users who were very active in “offline” activities of the community. Cautions considered, relevant features could none the less be discerned from the model. By being able to identify nodes as well as the content of interactions, the features that emerged could further be grounded in a detailed case history that had been developed over several years of study.

### ***Top level network features***

The community appears to have successfully involved participants in a dense web of conversation, with most nodes in the network sharing ties to multiple other nodes. (The mean number of ‘ties’ connecting a node to others is 16, with a standard deviation of 16.) Figure 3 graphs the level of connectedness across the participants.



**Figure 3** – Number of node ties (Y) ordinaly ranked (X) for all of the 163 nodes.

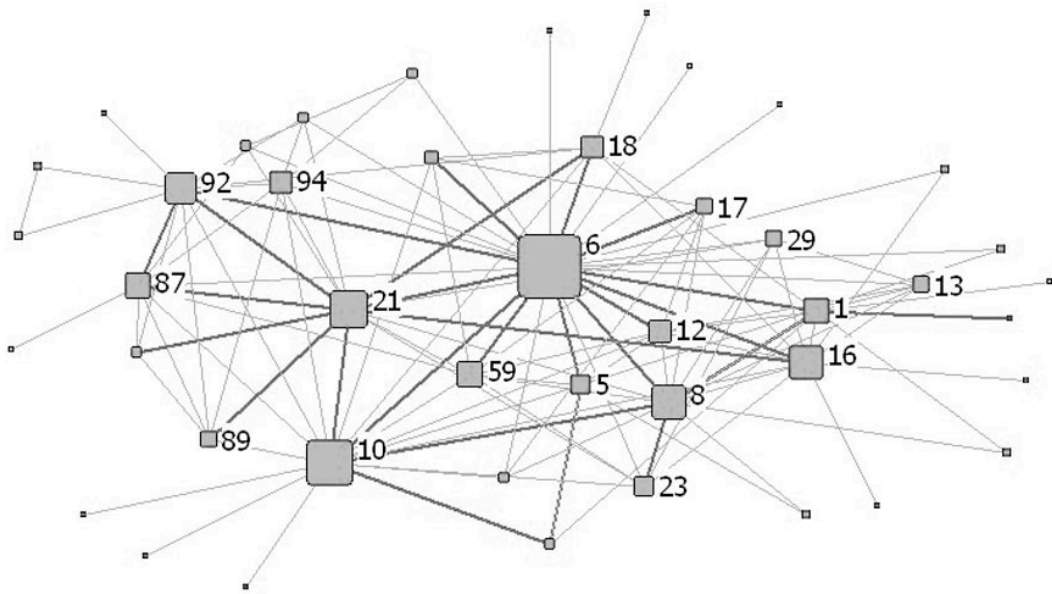
As a result of the relatively high degree of connectedness, the average number of ties traversed to connect any two nodes is fairly short, with 98% of nodes are linked to each other via 3 ties or less. This is characteristic of what Strogatz and Watts (1998) define as a “small world network”, typical of many social networks, including the internet. Small world networks have the potential to spread information very quickly, though the process relies disproportionately on a number of well connected nodes to supply ties between otherwise weakly connected clusters of nodes (Shirky, 2008). A few prolific communicators effectively provide most of the apparent “sharedness” of conversation observed in the graph.

### ***Network diagrams***

Having established the small world nature of the community network, we were eager to understand what structural patterns of ties and nodes were evident. Network diagrams were developed with Netdraw (Borgatti, 2002) so that nodes are placed nearest in two dimensional space to others they have strongest ties with, the people they communicate with most frequently. In some cases, minor manual adjustments were subsequently made to node positions to more clearly visualise significant structural features. Since the network was fairly densely connected, it was visualised showing only nodes connected by stronger ties, represented by at least three shared conversations, to more clearly account for potential underlying structure.

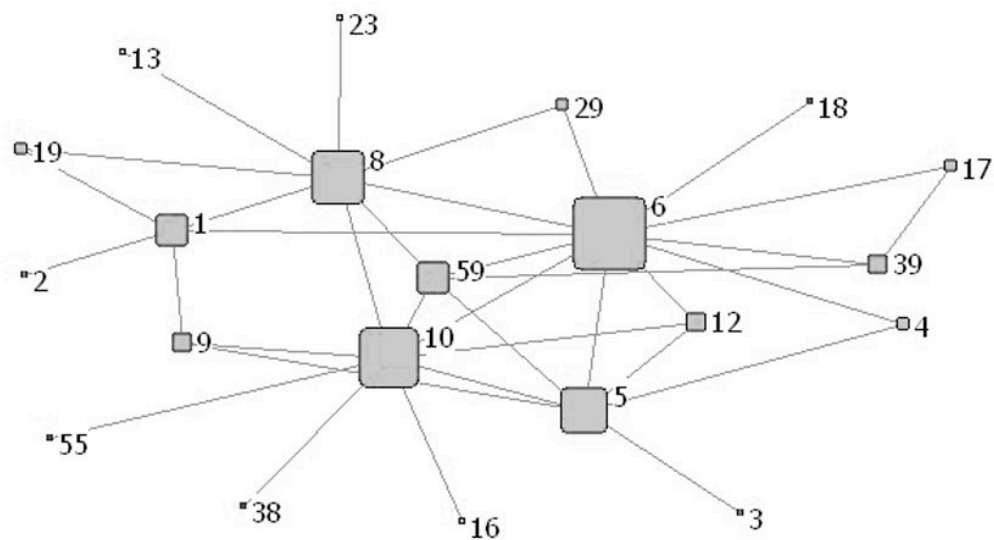
Figure 4 depicts the nodes in the network that are connected by at least 3 shared conversations over three years, with stronger ties indicated for nodes who shared 5 or more conversations. Nodes have also been scaled so that larger blocks indicate higher degree of connectedness. The stronger ties do not so much create “clusters” of nodes as proposed by Wellman (2000b), as two significant hub and spoke arrangements (Krebs & Holley, 2006) with node 6 and node 21 respectively representing the hubs. At weaker tie strength (the grey lines in Figure 4), a number of further hub and spoke arrangements appear, e.g. centred on nodes 92, 8 and 10.



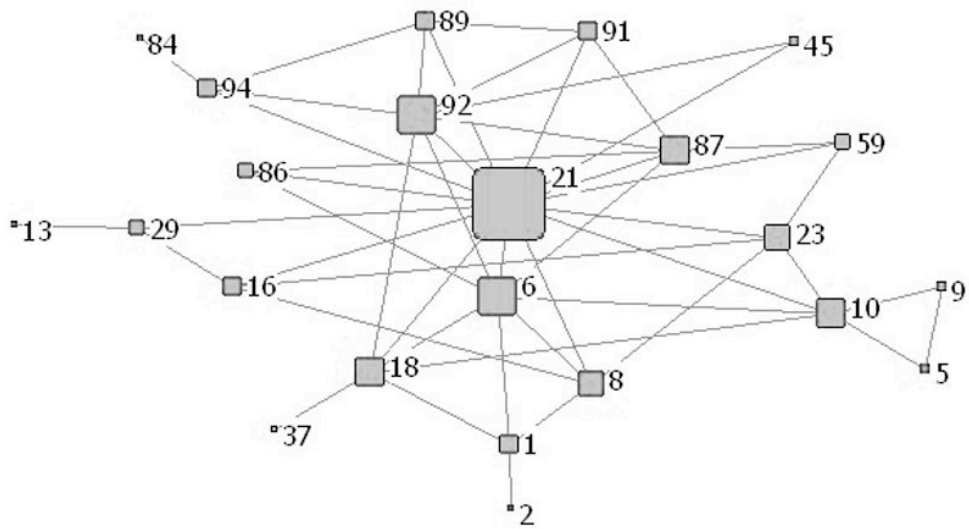


**Figure 4** - Nodes connected by ties with strength of  $\geq 3$  (light) and  $\geq 5$  (dark) relations overall

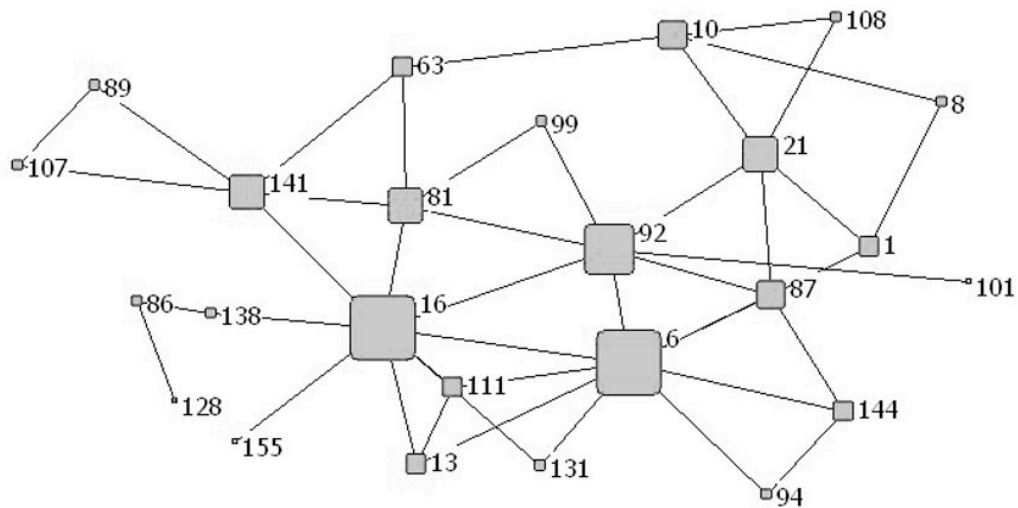
To present a view of structure aggregated over shorter time span, and so account for potential evolution in dominant elements, interaction was further disaggregated into individual diagrams for each year (Figures 7,8,9).



**Figure 5** - Nodes connected by  $\geq 3$  relations during 2006



**Figure 6** - Nodes connected  $\geq 3$  relations during 2007



**Figure 7** - Nodes connected by  $\geq 2$  relations during 2008<sup>1</sup>

<sup>1</sup> Note that, since there was significantly less interaction in 2008, Figure 9 uses only two relations as minimum tie strength to achieve sufficient resolution. At tie strength of two, the diagrams for previous years become too dense to clearly visualise the hub and spoke configuration.

The hub and spoke patterns first observed in the aggregated diagram (Figure 4) are equally present in figures 5 to 7.

A few further features are worth pointing out:

1. Node number 6 is prominently visible in each of the three yearly diagrams. This is the original animator of the community, also evident in Figure 4 as perhaps the most significant connecting force in the community.
2. The most prominent hub and spoke arrangements evolve year on year. For example, node 21 is not present in Figure 5, then very prominent in Figure 6. The next year, in Figure 7 its prominence is again reduced. This appears to indicate that many hubs are active for a year, sometimes two, then move to the background or disappear entirely.
3. There are a number of lesser hubs each year, some develop – others maintain a constant lower level presence through several years.
4. Note that the node ID numbers are all below 60 in Figure 5; in Figure 7, two years later, they are almost all above 60. The numbering broadly reflects the registration date of a participant. Newer members seem to be making the bulk of contribution in later years, though some longer standing members are still present.

The network structure evolves quite dramatically – at least insofar as we are able to analyse it by means of interaction in discussion forums. There are persistent features – particularly the community animator who keeps a constant presence - but we do not see the bonded clusters observed in “glocalisation”. This may be because the case community is not strongly grounded in geography or a very specific practice, but instead connects diverse people from a broader region, and covers divergent issues within “sustainable development”. It is also possible that the online forum obscures exactly the effect of geography, since only one or two members from any given local network interact and members interact as much on non-local issues as those close to home.

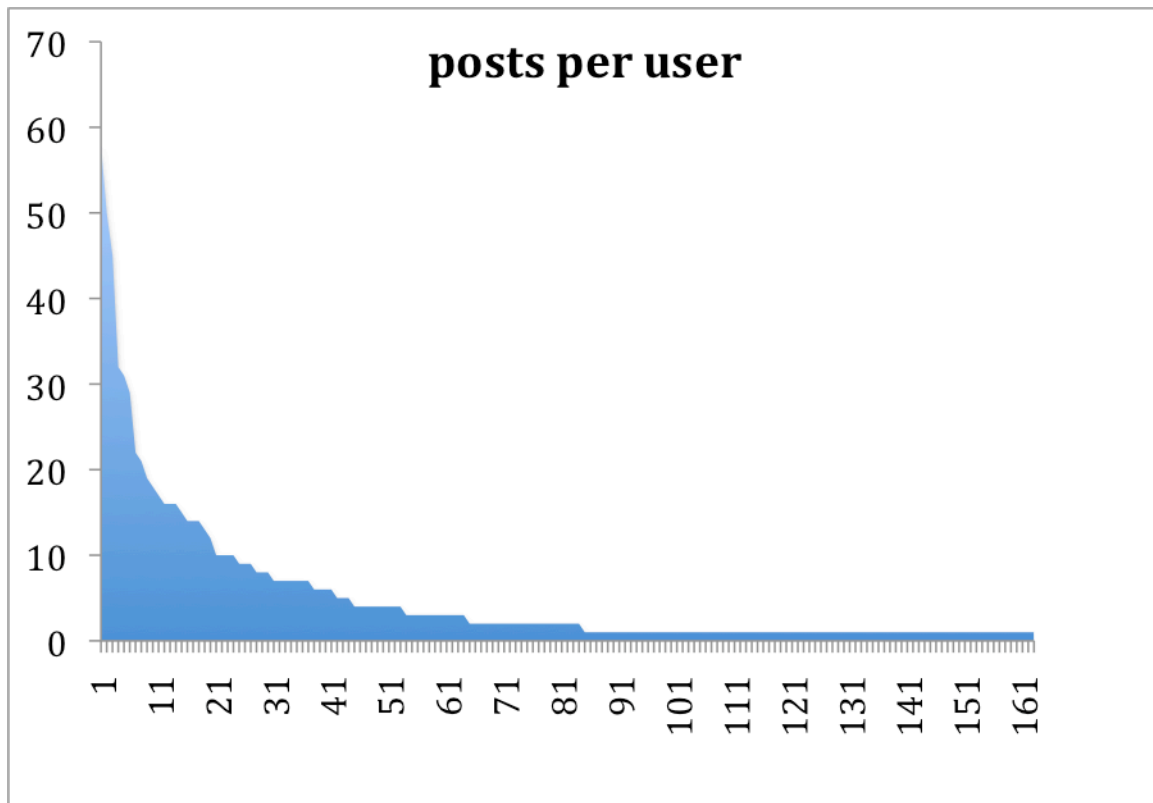
### ***Hubs of interaction***

One pattern that consistently reappears is the hub and spoke configuration, also called a “star” (Freeman, 1978) in graph theory. Krebs and Holley (2006) describe that this pattern commonly evolves in networks that have their basis in multiple small fragments of network. In their account, a network “weaver” creates the hub and spoke arrangement when they introduce links to at least one node in each of the fragments. Initially all links between outlying fragments is through the hub, but through the efforts of the “weaver”, the structure evolves so that clusters begin to link to each other directly, forming a network with multiply connected clusters. Krebs proposes the clustered configuration is more robust than a strongly centralised star network and offers a higher level of connectivity – it does not rely as strongly on the original “weaver”. In terms of our typology of actions

(figure 1), Krebs' "weaver" might be said to be engaged in "animating" actions. From a governance perspective, the evolution away from a single, central hub introduces multiple channels of dialogue and is more representative of the diversity the community may have been created to support. In our diagrams, not all members of the initial fragment communities are visible – typically only one or two members of each would join the online community, and of those, not all are active on the platform. As we have mentioned of geographically influenced "glocalisation", the case study may well be shown to support a number of stronger network clusters on the periphery if a more inclusive process of measurement were employed.

In addition to a main hub and spoke arrangement with the animator or "weaver" at its center, our analysis shows the emergence of multiple subsidiary hubs. For periods, some overtake the central hub in terms of both connectivity and activity. Closer investigation shows that prominent hubs represent not only administrators, but also diverse community members – some who are professional development practitioners or represent environmental NGO's, others community activists who connect passionately on a few issues that relate to their location.

When a hub makes a discussion contribution, they create a reciprocal tie with each of the nodes in the discussion, improving not only their own connectivity, but that of others as well. As we have shown in Figure 3, this creates the impression of a high degree of overall connectivity. To better show how the effort or impetus lies with hubs, Figure 8 shows the distribution of contributions over users.



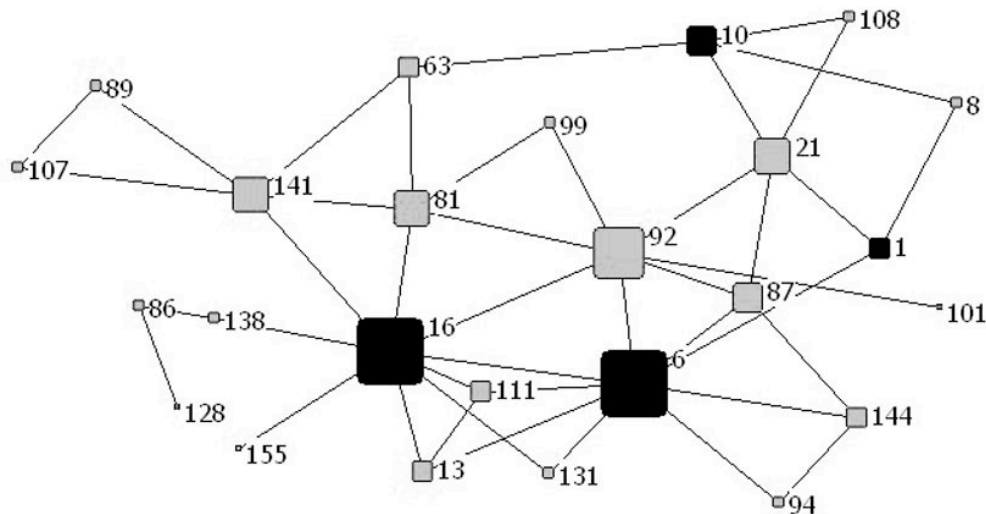
**Figure 8** – Number of posts by individual users (Y) ordinally ranked (X)

The graph approaches a power law distribution (Shirky, 2003). The most prolific 16 nodes (10%) contributed 419, or 49% of messages over the sampling period. As expected, hubs were all located to the left of the graph. Some prolific contributors however spread contributions broadly across conversations, while others were more likely to engage in a sustained conversation within a smaller number of threads. It is a limitation of our network visualization that the latter are not shown as prominently in the network diagram as people who spread their contribution more broadly.

For direct deliberative governance to be successful, diverse participation is important (Cohen, 1997) – exactly the contributions from the periphery of a network need to be encouraged. At the same time, the sustained involvement of an engaged group of users, in Wenger's terms (1998) considered the community core, is required to keep a community active and functional. The multiple hubs we have seen emerge may be one way for a social network to evolve beyond the single hub and spoke configuration that characterises its starting condition. Multiple hubs have the advantage that they present more diversity than a single core, while at the same time supplying the initiative and connective fabric required to keep a community alive. They do however represent challenges, in particular that hubs appear to emerge spontaneously and then remain active for a relatively limited period only.

### 4.3 Governance actions considered in terms of structure

Combining the two dimensions of online governance action – acts at different levels of empowerment, and the structure within which these acts occur – provides a clearer understanding of the potential for an online social network such as the case study to support direct deliberative governance. In an online network the actors (nodes) do not have complete freedom, much as their networked individualism collectively accounts for part of the structure (Castells, 2000). The network itself is programmed (Castells, 2007, Lessig, 2006) so that it controls flows of information (Deleuze, 1995, in Willcocks, 2004), or provides limited and potentially inequitable affordances (Wellman et al., 2003) for action, whether deliberately or inadvertently. A clearer understanding of these dimensions might accordingly suggest design considerations for the toolsets that define the space of interaction, as well as raise questions for further research.



**Figure 9** - Network diagram for 2008 indicating community administrators in black

Figure 9 again shows the network diagram created by interactions in 2008, but further indicates the presence of different kinds of participant to emerge from our discussion. Grey squares, the regular users, represent most of the nodes in the diagram. Formally appointed community administrators are coloured in black. Nodes have been scaled to show their degree – with the largest nodes representing obvious hubs.

In terms of the typology of governance actions (**Figure 1**), users who were engaged only as *observers* are entirely absent from the diagram – our method could not infer relationships for users who did not actively participate. The

majority of those represented acted as *participants*, the 2<sup>nd</sup> level in the agency typology. Moderators were appointed by the project team, and were required to *contribute* content as well as *facilitate* conversation – represented by the 5<sup>th</sup> level of the typology. They were however not sufficiently active online, in spite of their appointed role, to be visible in the diagram. Only community administrators, in this case all members of the project team, were able to fully engage in all levels of action and accordingly played a significant role as *animators* of the interaction.

Hubs representing community administrators (larger black squares in Figure 9) impacted the community in very significant ways, for example:

- by steering discussion toward topics that they understood, considered sufficiently relevant and further that they were comfortable with,
- by mediating interaction with potential new hubs in terms of their own views and relationships,
- by implicitly presenting an “identity” of the community through their visible interaction – people strongly associated the online community with the main administrator.

We do not attach normative value to these acts - their impact may variously have been positive or negative in terms of the community. We do however consider that such *filtering*, *facilitating* and *animating* actions need to represent diverse actors and opinions for effective direct deliberative governance. It was not sufficient that only members of the project team should display this initiative.

Hubs represented by regular users (larger grey squares in Figure 9) could however also be said to have acted with a high level of agency. Their numerous network ties mediated connection, while they too steered discussion with their comments or by importing snippets from other conversations, in aggregation well beyond the influence of the average user. These hubs were also the only users other than administrators to contribute by providing information to the e-library and newsletter via email. In terms of the typology, they acted as *facilitators* (at the 5<sup>th</sup> level), though not formally supported to do so and with limited affordance in terms of platform functionality they had the opportunity to use.

This presents a more diverse picture of the impetus in the community than initially imagined, where previously the acts of hubs were simply aggregated to a “community core”. The case history indicated that many of the (non administrator) hubs acted in a way that was significantly embedded in a local community. They had strong personal interest in resolving or mediating specific local issues and so collectively presented divergent perspectives. Many of the hubs were in fact *animators* in their local (offline) communities, with significant ability to *facilitate* or initiate action and significant “social capital” (Coleman, 2000). Outside of the online community, they routinely acted with relatively high agency freedom as we have defined it.

## 5. Conclusions and further work

In the introduction, we outlined a form of locally focussed direct deliberative democracy as the lens through which to investigate the potential contribution of online 'communities of interest' to governance. This set the goal for a platform which would support multiple types of action, focussed on local issues, where participants had most motivation and pragmatic ability to contribute. It further set the ideal of a process without institutional government at its centre, open to as broad a range of opinion and agendas as possible.

Analysis appears to support that the case community effectively engaged a range of participants in open discussion, building networks of interaction focussed on topics of governance that emerged substantially "bottom up". However, our resulting typology of the actions which contributed to the community and its discourse raises the question of who was most significantly empowered – which participants, for example, had power over the agenda. While we consider it positive that the community of interest created opportunity for multiple levels of interaction, open to participants who may otherwise have been disengaged, most members acted at a relatively low level of empowerment. Network analysis gives the impression that, while the network was highly dynamic, perhaps more fluid than the structure of collectives proposed by Wenger (1998), the central community animator and formal administrators were undoubtedly central features, providing social ties and impetus to the initiative. It also shows however, that each year a number of other community members raised their level of interaction to act as network hubs, effectively using the community portal to engage an audience with issues that concerned them, and so act with relatively high level of empowerment. This accounted significantly for the dynamism in community, in some years individually surpassing the collective 'administrators' in extent of their contribution.

The analysis raises the question whether the online community space could have more explicitly empowered these 'discussion animators' to facilitate interaction? Might this have increased both their capacity to animate sub networks within the community to diverse causes, as well as build stronger network ties for mutual benefit? It seemed in many cases that animators would not benefit from being entirely independent, each in their own re-invented network. The online community of interest aided their cause in multiple ways. By supplying initiative, and by creating a public space as well as the means for interaction, the "transaction cost" (Cordella, 2006, Shirky, 2008) of their interaction had been lowered. At the same time, the hubs were free to align interactions with their interests and objectives. Furthermore, to refer back to the roots of our typology of actions, agency freedom is not purely related to "what one can do", but to "what one can achieve" by doing (Zimmerman, 1995) - actors are empowered only when their actions have contingency (Grimsley & Meehan, 2007). In the context



of the case study, contingency was afforded by the legitimacy that association with a broader initiative conferred to actions, but also the potential audience and the links already latent in the network itself. This presents the combined challenge of affording these emergent network hubs, the 'discussion-animators', the maximum agency freedom, while none the less maintaining a relatively cohesive and egalitarian network for the collective good.

The objective of the case community was clearly not to develop a system that required all the energy of its users to sustain, that would become an end in itself. Rather, where it was most successful, the online community supported individual initiatives "on the ground", where there were already incipient action networks. This networked approach suggests that an online community of interest functions not only to support discursive action, where much research is presently directed, but also to potentially act as network broker, connecting action networks in a way that might have previously been the role of traditional governance intermediaries such as political parties.

This raises further questions for investigation. Direct deliberative governance presents the imperative to encourage contribution from all parts of the network – do the emergent social network hubs mediate this process effectively, and how could the agency freedom of an average user be improved through empowered hubs? The contingency of action in an online space might significantly depend on how such hubs (or entire networks) in the online communication space intersect with hubs or clusters in local, offline space. Mejias (2006) describes how the "local" is reconfigured by the mediation of a potentially global network. Key incidents within the case community illustrate how someone with little power (but significant initiative) in the offline world might use their "social-capital" in the online space to effect real change, effectively reconfiguring how they are connected in several local, offline networks.

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